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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,727	11/03/2005	Giuseppe Baldacchini	GRT/4161-11	9965

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EXAMINER	
NELSON, MICHAEL E	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
02/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,727	BALDACCHINI ET AL.	
	Examiner	Art Unit	
	MICHAEL E. NELSON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/08/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it includes the implied phrase "The present invention relates to." The abstract can begin simply "A method" or "Methods"

2. Correction is required. See MPEP § 608.01(b).

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-8, 17, 19, 21, 23, and 25-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. In Claim 1 applicant states “Method of preparing an organic luminescent material comprising the step of depositing a thin film of organic luminescent substance on a solid inert support, then **heat-treating (annealing)** the deposited substance…”

7. While heat-treating and annealing are generally used in the same manner, it is unclear from the language of the claim whether Applicant intends the two terms to mean the same thing, or whether they are to be considered different processes.

8. Claims 2-8, 17, 19, 21, 23, and 25-26 are likewise rejected since they depend on claim 1.

9. Claim 2-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 states “wherein the **humidified** atmosphere is an atmosphere of oxygen, nitrogen air, inert gas or mixture thereof, containing more than 50% moisture, or of **anhydrous** oxygen, nitrogen, or inert gas or mixtures thereof.”

10. It is unclear how a humidified atmosphere could also be anhydrous, since by definition the two are opposites. For purposes of examination, the claim will be examined where "the **atmosphere** is an atmosphere of oxygen, nitrogen, air, inert gas or mixture thereof, containing more than 50% moisture, or of **anhydrous** oxygen, nitrogen, or inert gas or mixtures thereof.”

11. Claims 3-6 are rejected since they depend from claim 2.

12. Claims 5-6 and 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Claims 5 and 13 both state "wherein the organic luminescent substance is a photoluminescent or electroluminescent substance selected from the group consisting of (Alq_3),(Alq_2-OPh) or (TPP)/Alq_3, or **functionally equivalent substances**. It is unclear what is intended by functionally equivalent substances. The compounds described in the claims have multiple functionalities, as luminescent materials, as charge transporting materials, among others. For the purpose of examination, the claim will be limited to the compounds described in the claim.

14. Claims 6 and 14-15 are rejected since they depend from claims 5 and 13 respectively.

15. Claims 25 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

16. Claims 25 and 26 provide for the use of a device according to claim 21 or system according to claim 23, but, since the claims do not set forth any steps involved in the methods/processes, it is unclear what methods/processes applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

17. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

18. Claims 25 and 26 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Information Disclosure Statement

19. The information disclosure statement filed 04/08/2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. Given that no copy of EP 1146574 was provided this reference has been stricken from the IDS filed 04/08/2005.

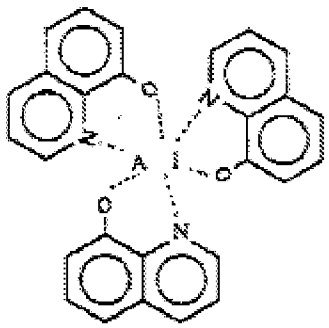
Claim Rejections - 35 USC § 102

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

21. Claims 1, 7, 9, 13-15, 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Hatasawa et al. (JP 05-182764).

22. Concerning claims 1, 7, 9, 13 and 15, Hatasawa et al. describe organic electroluminescent devices comprising a luminous layer which is a vacuum-evaporated (deposited) layer of Alq_3 (shown below) ([0032]), on either a negative electrode, or hole transporting layer (inert layers), where the device was heat treated under room atmosphere [examples 2 and 4], and then cooled (predictably under the same atmosphere).



(2)

23. Concerning claim 14, since the second substance in the layer is an optional component, the limitations of claim 14 are met inherently.

24. Concerning claims 17-22, as stated in the MPEP 2113:

25. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

26. The product by process claims of claims 17-22 are therefore examined in terms of the product described, namely, Alq_3 having a stabilized luminescence and being in a crystalline phase different from that of the original luminescent substance.

27. Concerning claims 17-18, Hatasawa et al. disclose that the heat treatment produces a micro-crystalline condensation structure different from the non-heat treated

material. [0022], which produces a device with improved stability (stabilized luminescence). [0012]

28. Concerning claims 19-20, Hatasawa et al. describe the film deposited on an inert support of Alq_3 subject to heat treatment, as discussed above.

29. Concerning claims 21-22, Hatasawa et al. describe the luminescent device (electroluminescent device) discussed above.

Claim Rejections - 35 USC § 103

30. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

31. Claims 2-6, 8, 10-12, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatasawa et al (JP 05-182764) in view of Aziz et al. (6,734,623).

32. Concerning claims 2 and 10, Hatasawa et al. describe the film of organic luminescent material discussed above. Hatasawa et al. disclose that the annealing step occurs at atmospheric conditions. Hatasawa et al. are silent on the specific atmosphere available for the annealing step.

33. Aziz et al. describe annealed organic light emitting devices, and disclose annealing atmospheres comprising any suitable gas such as nitrogen, argon, helium, or mixtures thereof, or any suitable gas that do that have an negative effect on the performance of the device. In addition, Aziz et al. disclose that other suitable annealing

environments can be atmospheres deficient in moisture, such as dry air. (column 13, lines 50-57) Therefore, Aziz et al. teaches that the moisture content of the atmosphere is not critical to the annealing process. Given this teaching it would have been obvious to one of ordinary skill in the art to use an atmosphere of nitrogen, air, inert gas (such as helium) including anhydrous or humidified atmospheres.

34. Concerning claims 3 and 11, Hatasawa et al. describe the film of organic luminescent material discussed above, which is annealed at 120°C for 5 minutes. [Example 2 and Example 4]. Hatasawa et al. are silent on the amount of time between heating and returning to room temperature. However, the cool down time does not affect the formation of the microcrystalline structure described by Hatasawa et al., so it would have been obvious to one of ordinary skill to accelerate the cooldown to less than 5 minutes to decrease the amount of time necessary to manufacture the device.

35. Concerning claims 4 and 12, Hatasawa et al. describe the film of organic luminescent material discussed above, and disclose an annealing temperature of 120°C, but disclose that the annealing temperature should be between 50°C and below the melting point of the material, but preferably between 80°C and 150°C. [0022] Since the annealing temperature is an optimizable feature, it would have been obvious to one of ordinary skill in the art to adjust the annealing temperature to maximize the emission of the material to improve the efficiency of the device.

36. Concerning claim 5, Hatasawa et al. describe the film of organic luminescent material discussed above, which is annealed after deposition of the film, and where the temperature can be varied to optimize the emission of the material as discussed above.

Hatasawa et al. disclose by example the use of tris(8-hydroxyquinoline) aluminum as the luminescent material, as discussed above. [Example 2 and Example 4]

37. Concerning claim 6, Hatasawa et al. describe the film of organic luminescent material discussed above, which is annealed after deposition of the film, but are silent on the use of a second substance in the film. However, since the second substance is optional, the process described by Hatasawa et al. meets these limitations.

38. Concerning claims 8 and 16, Hatasawa et al. describe the film of organic luminescent material discussed above, where the annealing temperature can be optimized, and the humidity of the atmosphere can be varied, since it does not affect the formation of the microcrystalline material described by Hatasawa et al., and furthermore where the cooldown time can be reduced to less than 5 minutes to reduce the manufacturing time. Hatasawa et al. are silent on the use of specifically **about** 150°C or **about** 10 minutes, but as discussed above, Hatasawa et al. teaches an optimal annealing temperature between 80°C and 150°C, and further more teaches an annealing time between 1 and 30 minutes. [0022] Given the teaching by Hatasawa et al. it would have been obvious to one of ordinary skill in the art to adjust the annealing temperature and annealing time to optimize the emission of the material, or otherwise optimize the performance of the device described.

39. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatasawa et al. (JP 05-182764) as applied to claims 21 and 22 above, and further in view of Motomatsu (US 2001/0004113).

40. Hatasawa et al. describe the luminescent device discussed above, comprising a heat-treated film of Alq_3, where the crystalline phase of the material is different from that of the original deposited film. Hatasawa et al. are silent on a sealed atmospheric agent proof system comprising the device.

41. Motomatsu et al. describe organic electroluminescent devices, on which a dehydrating agent is fixedly mounted, and which is sealed using a sealing member in an inert atmosphere to create a sealed system. (abstract) Motomatsu et al. disclose the use of the sealed system is superior in humidity resistance and has increased luminescence half-life. [0085]

42. Therefore, it would have been obvious to one of ordinary skill in the art to seal the device described by Hatasawa et al. in an atmospheric agent-proof system to increase the humidity resistance and increase the luminescence half-life of the device.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL E. NELSON whose telephone number is (571)270-3453. The examiner can normally be reached on M-F 7:30am-5:00pm EST (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael E. Nelson
Examiner
Art Unit 1794

/Callie E. Shosho/

Supervisory Patent Examiner, Art Unit 1794